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(पहला पुनरीक्षण)

Indian Standard

GLOSSARY OF TERMS RELATING TO OPEN TOP SANITARY CANS

(First Revision)

ICS 55.120; 01.040.55

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BUREAU OF INDIAN STANDARDS
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NEW DELHI 110002

September 2012 **Price Group 4**

Metal Containers Sectional Committee, MTD 32

FOREWORD

This Indian Standard (First Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Metal Containers Sectional Committee had been approved by the Metallurgical Engineering Division Council.

This standard was first published in 1984. In this revision definitions of new terms have been added and the definitions of a number of terms have been modified in the light of the latest technological developments in this field. It is hoped that this standard would help to remove any ambiguity and confusion arising out of individual interpretations of different terms in the field.

Assistance has been derived from ISO 90-1 : 1977 'Light gauge metal containers — Definitions and determination of dimensions and capacities — Part 1: Open top cans', issued by the International Organization for Standardization.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

GLOSSARY OF TERMS RELATING TO OPEN TOP SANITARY CANS

(First Revision)

1 SCOPE

This standard covers definitions and the method of designating open top sanitary cans for processed foods and beverages.

2 REFERENCE

The following standard contains provision which through reference in this text, constitutes provision of this standard. At the time of publication, the edition indicated was valid. All standards are subject to revision and parties to agreements based on this standard is encouraged to investigate the possibility of applying the most recent edition of the standard indicated below:

IS No.	*Title*
12219 : 1971	Method of determination of gross lidded capacity of open top sanitary cans

3 TERMS AND DEFINITIONS

For the purpose of this standard the following terms and definitions shall apply.

3.1 Can — A rigid container made of metal with maximum nominal material thickness of 0.49 mm.

3.1.1 *Open Top Sanitary Can* — A hermetically sealed metal container suitable for thermal processing, product-tight, air-tight and micro-organism tight packing.

3.1.1.1 *Open top can for beverages* — Open top can for liquid products to which gas is added during filling.

3.1.2 *Vent Hole Can* — A can with both top and bottom ends capped on and soldered or seamed and one end being pierced with a vent hole.

3.1.3 *Can with Easy-Open, End for Food and Beverages* — Can having one end comprised of a sheet metal wall with a line of scoring forming a tear strip or area and having a tab attached to the tear strip or area for easy manual severance thereof.

3.2 Cross-sections

3.2.1 *Round Can* — A can having circular cross-section (*see* Fig. 1).

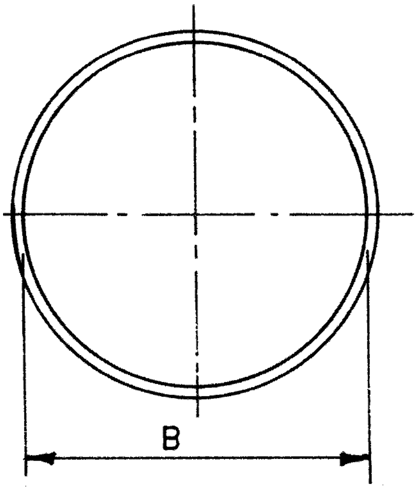
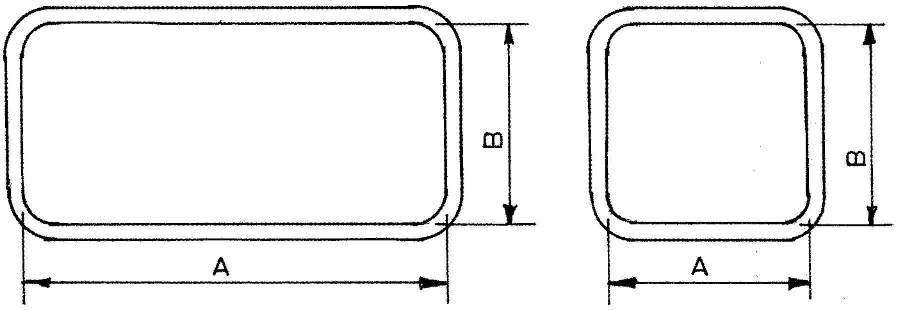


FIG. 1 ROUND CAN

3.2.2 *Rectangular Can* — A can having a rectangular (including square) cross-section and rounded comers (*see* Fig. 2).



2A Rectangular Cross-Section 2B Square Cross-Section

FIG. 2 RECTANGULAR CAN

3.2.2.1 *Obround cans* — Can with a cross-section of parallel sides of equal length joined by two curved ends, which may be circular (*see* Fig. 3A) or include different radii (*see* Fig. 3B).

3.2.2.2 *Trapezoidal can* — Can with an approximately trapezoidal cross-section with rounded comers (*see* Fig. 4).

3.2.3 *Oval Can* — A can having an oval cross-section (*see* Fig. 5).

3.3 Constructions

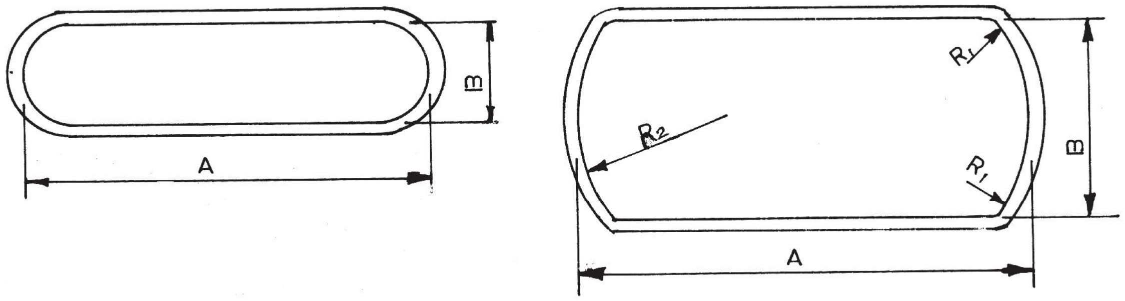
3.3.1 *Three Piece Can or Built Up Can* — A can made from at least three main components: body, top end and bottom end (*see* Fig. 6).

3.3.1.1 *Diaphragmed can* — Can having a double-seamed diaphragm ring at the top end and a plug which fits into the ring (*see* Fig. 6B).

3.3.2 *Two Piece Can or Drawn Can* — A can made from two main components: body and bottom end formed or drawn and top end (*see* Fig. 7).

3.4 Shapes

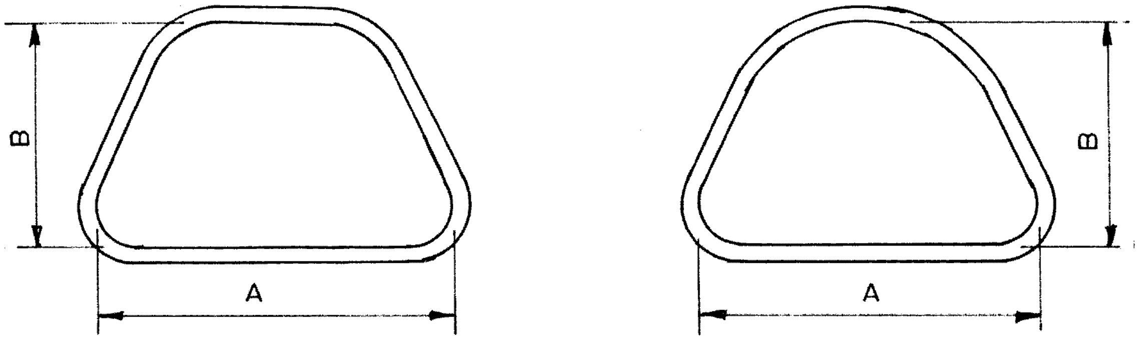
3.4.1 *Cylindrical Can* — Can which has cross-section of constant dimension from top to bottom, local variations caused by special features such as beading, etc; being disregarded (*see* Fig. 8).



3A Semi-circular Ends

3B Ends of Different Radii

Fig. 3 Obround Cans



NOTE — Some variations of the trapezoidal can are also known as pear-shaded cans.

Fig. 4 Trapezoidal Cans

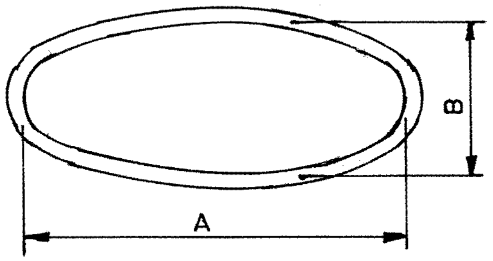
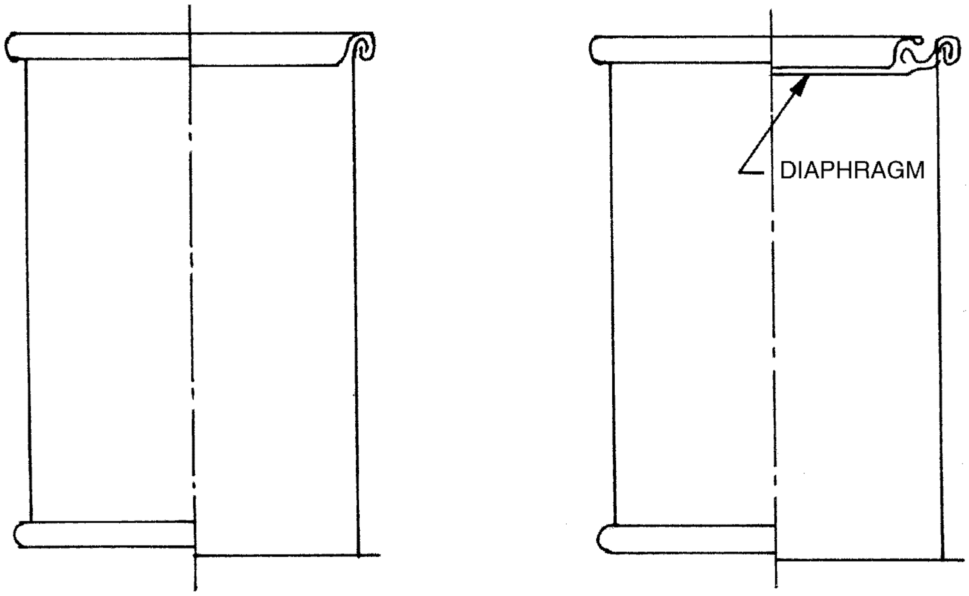


Fig. 5 Oval Cans



6A Open Top Can

6B Diaphragmed Can

FIG. 6 THREE PIECE CAN

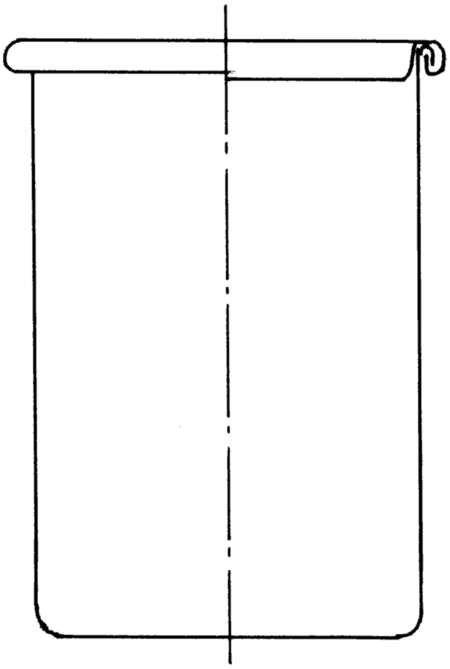


FIG. 7 TWO PIECE CAN

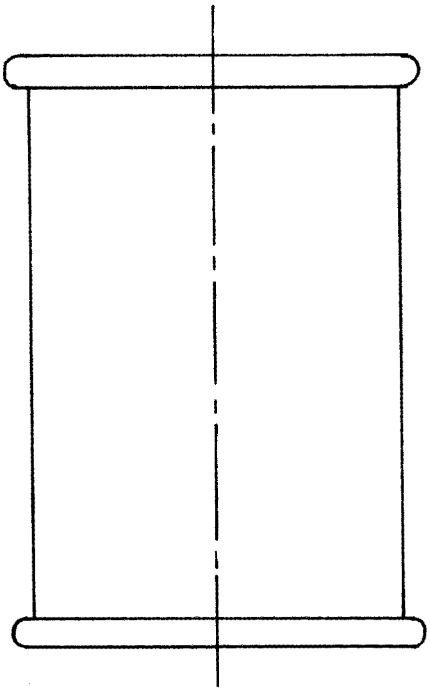
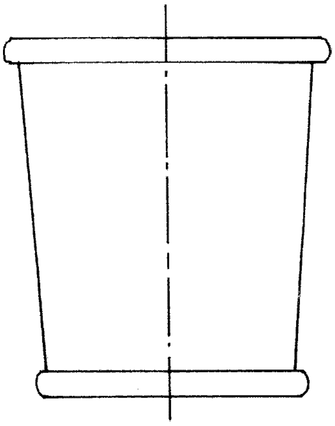


FIG. 8 CYLINDRICAL CAN

3.4.2 *Tapered Can* — Can whose cross-section changes linearly from top to bottom, local variations caused by special features such as beading, necking-in, etc, being disregarded (*see* Fig. 9).



NOTE — Figures 8 and 9 apply to both round and non-round cross-sections.

FIG. 9 TAPERED CAN

3.5 Special Features — The diagrams apply equally to round and non-round cross-sections.

3.5.1 *Necked-in Can* — A can in which one or both extremities of the body have been reduced in cross - section (*see* Fig. 10).

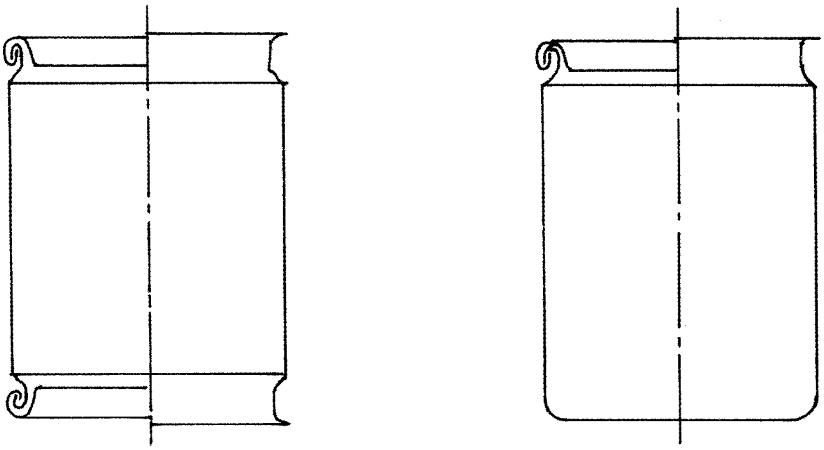
3.5.2 *Step-Sided Can* — A can in which one extremity of the body has been increased/ reduced in cross-section (*see* Fig. 11).

3.5.3 *Beaded Can* — Can whose body has small internal and/or external peripheral changes in cross-section (*see* Fig. 12).

3.5.4 *Special Profile Can* — Can whose body varies in cross-section to give a particular profile (*see* Fig. 12).

3.6 Capacity

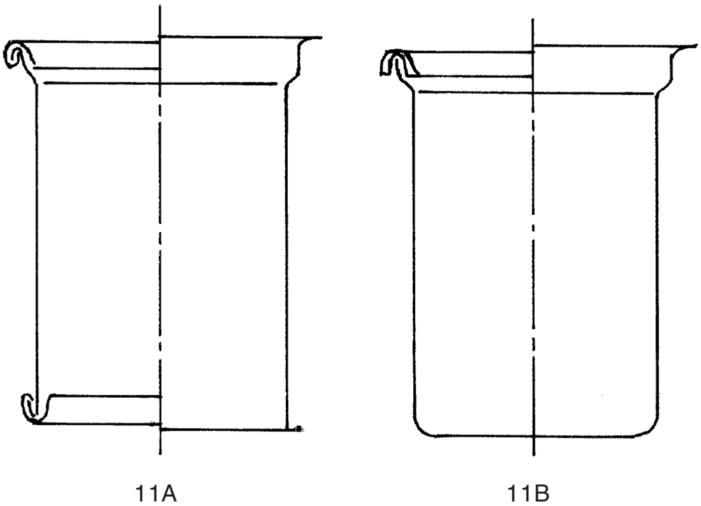
3.6.1 *Nominal Filling Capacity (V)* — The volume of product the can required to hold.



10A Two Necked-in

10B One Necked-in

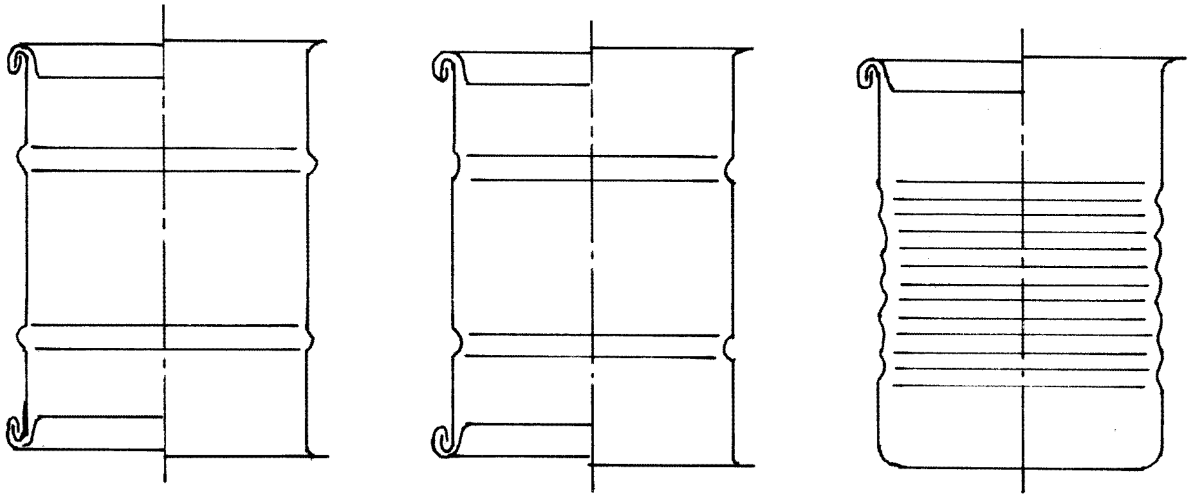
FIG. 10 NECKED-IN-CAN



11A

11B

FIG. 11 STEP-SIDED CANS



12A With External Changes

12B With Internal Changes

12C With External and Internal Changes

FIG. 12 BEADED CANS

3.6.2 *Gross Lidded Capacity* (*C*) — The total capacity of a closed in millilitre, can to be determined according to the method given in IS 12219.

3.6.3 *Head Space* (H_1) — The distance between the product level and the open top end of the can in millimetre.

3.6.4 *Head Space for Beverage Can, (K)* — Difference between the gross lidded capacity and the nominal filling volume, or as a percentage of the gross lidded capacity in millilitre.

3.6.5 *Freeboard for Beverage Cans* — Height, from the flange of an open-top can to the surface level of a liquid product when filled to the nominal volume in millilitre.

3.6.6 *Body Height* (H_1) — Height of the factory-finished empty can, in millimetre (*see* Annex A).

4 DIMENSIONS

4.1 Cross-sections

4.1.1 The internal body cross-section measured by using a plug gauge or derived from the external cross-section measured with vernier caliper.

4.1.1.1 The necked-in or step-sided cans opening cross-section measured by using a plug gauge applied to internal cross-section of the aperture to which the end is to be fixed.

4.1.1.2 The opening cross-section of a cylindrical can measured by using a plug gauge applied to internal cross-section of the aperture to which the end is to be fixed.

4.2 Nominal Cross-section

Where a series of internal body cross-sections have been agreed, nominal cross-sections shall be determined by rounding the standard internal body cross-sections or necked-in or step-sided cross-sections to the nearest whole millimetre (if the first decimal is 5 or above round up, in all other cases round down).

4.2.1 *Measurement of Height* (*see* Annex A)

4.3 Characteristic Dimensions

Nominal cross-sections are characterized by the following data.

4.3.1 *Cylindrical Round Can*

Dimension *D* (*see* Fig. 1).

4.3.2 *Cylindrical Non-round Can*

Dimensions *A* and *B* (*see* Fig. 2 to Fig. 5).

4.3.3 *Special Features*

4.3.3.1 *Necked-in can*

The cross-sections in the necked-in area are indicated as follows :

a) D_N for round cans
b) $A_N \times B_N$ for non-round cans
} *see* Fig. 13B

4.3.3.2 *Step-sided can*

The cross-sections in the step-sided area are indicated as follows:

a) D_s for round cans
b) $A_s \times B_s$ for non-round cans
} *see* Fig. 13C

5 DESIGNATION

5.1 Open Top Sanitary Can Designation

The open top sanitary cans may be designated,

a) by their nominal gross lidded capacity or their nominal filing volume (carbonated drinks cans only) expressed, in millilitre; and

b) by their characteristic nominal dimensions, according to **4.3** in millilitre.

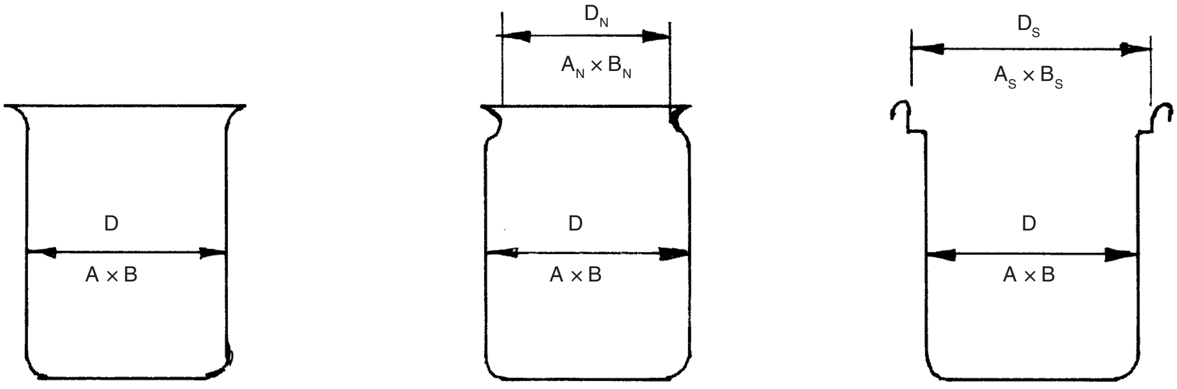
Step-sided or necked-in cans shall be denoted by adding the letters 'S' or 'N', respectively after the designation of the can.

In addition the nominal dimensions of the ends for necked-in or step-sided cans shall be included in the designation according to **4.3.3** immediately after the body dimensions.

Examples:

Can Construction		*Shape*	
		Round Can	Non-round Can
Cylindrical cans	(*see* Fig.13A)	$C.D$	$C A \times B$
Cylindrical cans Necked-in can	(*see* Fig. 13B)	$N.C.D/D_N$	$N.C.A \times B/A_N \times B_N$
Cylindrical cans Step-sided can	(*see* Fig. 13C)	$S.C.D/D_S$	$N.C.A \times B/A_S \times B_S$

NOTE — C = nominal gross lidded capacity.



13A Cylindrical Can 13B Necked-in Can 13C Side Stepped Can

FIG. 13 CAN DESIGNATION

ANNEX A

(*Clauses* 3.6.6 *and* 4.2.1)

MEASUREMENT OF BODY HEIGHT

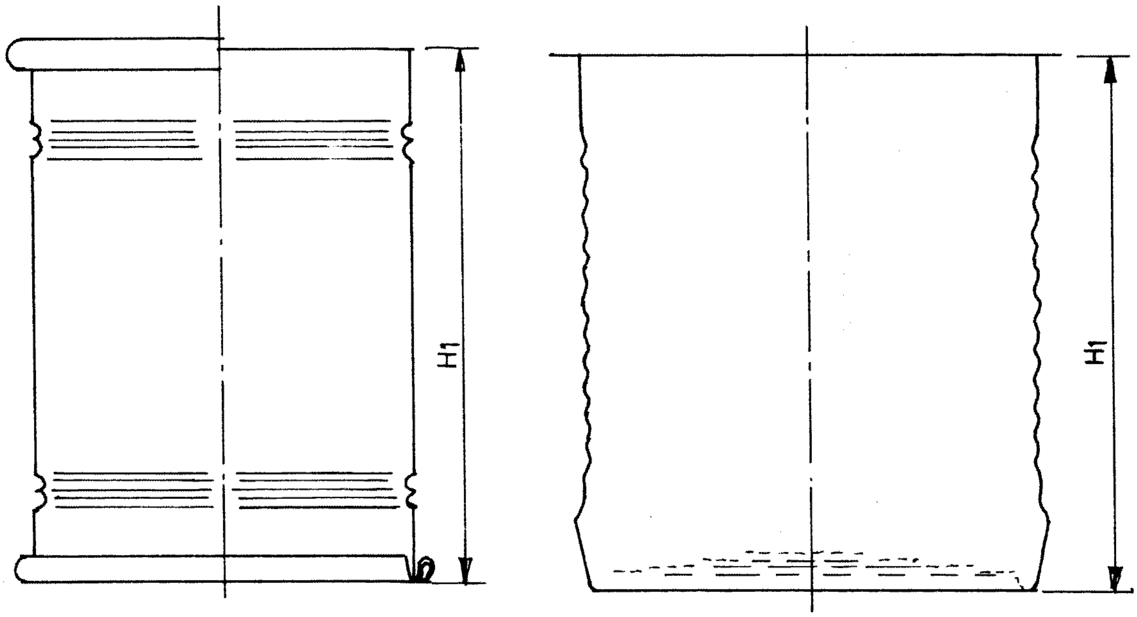
A-1 Measurement of height of open-top cans in **4**, it is recommended that open-top cans be designated internationally in the following manner:

a) A Code letter,
   1) Cy — cylindrical cans;
   2) T — tapered cans;
   3) S — step-sided cans;
   4) N — necked-in cans; and
   5) D — diaphragmed.

b) Their nominal gross lidded capacity '*C*' or nominal filling volume '*V*' expressed in millilitre; and

c) Their nominal cross-section.

However, it may be necessary to refer to the can body height (*see* **3.5.6**). The height, (H_1) (*see* Fig. 14) shall be measured using a vernier caliper or a height gauge.



14A Three Piece Can

14B Two Piece Can

FIG. 14 MEASUREMENT OF BODY HEIGHT OF OPEN TOP CANS

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This Indian Standard has been developed from Doc No.: MTD 32 (4912).

Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

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Published by BIS, New Delhi